

FLORIDA PLANT IMMIGRANTS

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FAIRCHILD TROPICAL GARDEN

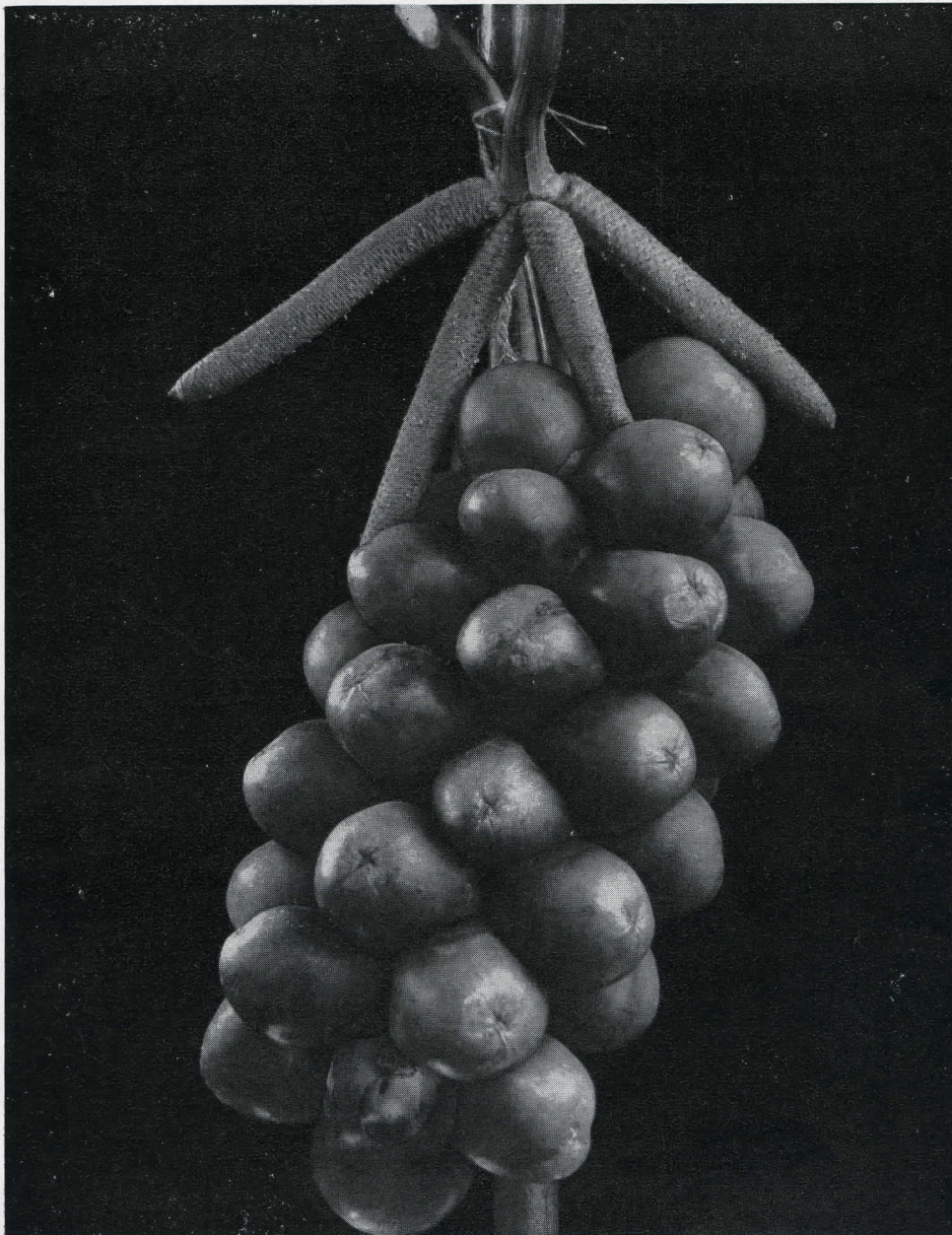
THE INTRODUCTION OF THE BORASSUS PALMS
INTO FLORIDA

By

DAVID FAIRCHILD

COCONUT GROVE, FLORIDA

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Fruits and male flower cluster of the Borassus palm of West Africa (*Borassus ethiopum*). The growers of this palm and its close relative in Ceylon are fond of the sweetish fruit-flesh and like the mango eaters, where stringy seedlings are grown, they suck the pulp out from the fibers and enjoy its sweetish flavor. The male flower spikes were taken from another palm; a male palm. Bathurst, Gambia, Allison V. Armour Expedition, 1927.

THE INTRODUCTION OF THE BORASSUS PALMS INTO FLORIDA

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THE *Borassus* palms deserve to be known by the residents of South Florida for they are landscape trees which may someday I trust add a striking tropical note to the parks and drive-ways of this garden paradise.

They attain to great size; a hundred feet in height and seven feet through at the ground. Their massive fan-shaped leaves are often six

feet across and ten feet long and their fruits are a third the size of average coconuts with edible pulp and with kernels which are much appreciated by those who live where they are common. They are outstanding palms; covering vast areas of Continental India, great stretches in East and West Africa and in Java, Bali and Timor and other islands of the Malay Archipelago.



A glade between groups of tall Palmyra palms in Northern Ceylon. The young palms are coming up through the sandy soil where the seeds were scattered over the ground and covered lightly months before. The old palms in the background are nearly seventy feet high and have smaller leaves than younger specimens. They have long since shed their leaf bases. Jaffna, Ceylon, 1926, Allison V. Armour Expedition. (*Borassus flabellifer*).

I have been asked what the name *Borassus* means, and have looked it up in Dr. Backer's "Verklarend Woordenboek" where this erudite botanist of the Netherlands Indies has gathered together an amazing amount of information regarding the origins of botanical names and the life histories of those personalities after whom the various plants have been named. I discover that Linnaeus, the great Swedish Botanist, quite arbitrarily gave it the Greek name for the fruit of the Date Palm, "borassos", of which *Borassus* is a transcription. Why he did this is not known, for this fan palm bears little resemblance to the feather palm (*Phoenix dactylifera*.) The specific name of *flabellifer* derives from the Latin word for fan, *flabellum*, and the verb *ferre* to bear; fan bearing. Literally I suppose we might say Linnaeus conceived of this palm, which he had doubtless never seen, as a "fan bearing or fan leaved date palm." Dr. C. A. Backer's book, a masterpiece in its field, was published by P. Noordhoff N. V. in Groningen, Holland, in 1936.



Three ripe fruits of the Palmyra Palm of Ceylon (*Borassus flabellifer*) laid at the roots of the palm that bore them and on their left several seeds from which the fibrous husk of the fruit has been removed. These seeds were dug up from the bed where they had been planted to germinate and produce the sinkers or "Dantalas" so much prized as a delicate vegetable by the Tamils. Jaffna, Ceylon, 1926.

It seems a bit absurd to me, although I know it should not, that I am forced to introduce to an intelligent American public, such ancient and important representatives of the Vegetable Kingdom as the famous *Borassus* or Palmyra palm and its close relatives.¹ For it was on their dry leaves that the Buddhist Priests of Ceylon were writing with their sharp stylus thousands of years ago the prayer notes from which they taught and with which they were able to memorize their prayers. There are those who believe that the picture writings or hieroglyphics scratched on palm leaves antedated the written language of mankind. It is believed that from these dry leaves used by the priests has come down to us the name of "leaf" as designating a book leaf.

Not to know anything about these old bundles of palmyra leaves, these "books" of the robed

priests, comparable to the Papyrus rolls of the ancient Egyptians, need not perhaps disturb us, for a thousand years is a long time ago.

But to have poured, as we many of us have, over the picture books showing the ruins of Buddhist temples in India, Cochin-China and Java and to have memorized the names of the rulers of those distant times and yet to know nothing about the living plants which surrounded these people; the trees under which they rested, the leafy palms which furnished food and other materials that contributed to their comfort, is to exhibit how helter skelter we are in our intellectual curiosities. What foods composed the bodies of these ancient peoples? The dwellings in which they spent their lives; what were they made of? And the household utensils, buckets, baskets and dippers and all the rest? I am reminded of a friend, a botanist

of distinction, who took a fancy to the beads which are found in the tombs of the ancients and spent years coloring sketches of them. And who shall say that what men chose to wear about their necks, even after death, is less important than what they ate? It all depends on the point of view. To me the palm the Tamils have made things out of is more interesting than the things they made.

Were the *Borassus* palms insignificant representatives of the great order of living things which have been called the "Princes of the Vegetable Kingdom"; had they not been most important factors in the lives of many millions of humans through many centuries; were their stately forms to be found only in some obscure corner of the world and not, as is the case, scattered in great forest-groves through great regions of Africa, over vast areas of India and even into the Islands of the Great East, the Malay Archipelago, and into the continent of Australia, I would feel differently about them and perhaps be less interested in their introduction into Florida.

When I reflect that it is now seventeen years since I had the pleasure of first seeing these palms and of getting their seeds, some of which have grown into stately structures without attracting much attention; I am conscious of the difference between a building and a tree. The town of Miami grew from a village to a city in less time than this, but think of the noise and the dirt and the swarming of humans involved in the building of even one of its modest skyscrapers as compared with the noiseless growth of the *Borassus* palms whose seeds were planted in a "pot hole" in the U. S. Plant Introduction Garden at Chapman Field in 1929 and which, with no particular attention whatever, have shot their massive crowns into the sky. Today their immense leaves and black trunks clothed with curious leaf bases never fail to charm the few who have taken the trouble to go down into the pot hole and gaze up through their striking leaf masses.

I am always reminded whenever I go to see these palms of the great Martius who when he was 23 travelled through Brazil and gathered materials for his "Historia Naturalis Palmarum", the outstanding work of his time on

palms and today one of the prized books of large libraries. On the frontispiece of this beautiful book of plates he has written these words:

"*In palmis semperparens juvenus; in palmis resurgo*" which may be variously translated but of all the translations I prefer this one: "Youth everlasting belongs to the palms; amid the palms I rise again." As the palms in the Palmetum of the Fairchild Garden grow taller I am coming to appreciate the truth of Martius' sentiments and wonder if in the years to come many who live here may not take comfort out of their association with the palms.

It is with the assumption that years hence there may be such as would care to know of the circumstances connected with the first introduction of the *Borassus* palms into Florida that I write these pages and tie them in with such facts as appear interesting regarding *Borassus* palms in general which are scattered through the literature at my disposal here. If this Occasional Paper should encourage the wide planting of these palms either from seeds borne by those already established here or by new importations from abroad the purpose of the paper will have been attained. The commercial utilization of its products may well wait an indefinite period. Its local use will be possible sooner.

In such early books as Lindley's Treasury of Botany and Engler and Prantl's Pflanzenfamilien the *Borassus* palms which are scattered from West Africa around the world in various widely separated regions as far as Australia, are considered as two species, *Borassus flabellifer* the "Palmyra" Palm of India and *Borassus ethiopum*, the "Black Rhun" or "Ronier" Palm of West Africa. In 1913 Professor Martelli of Florence, Italy, Editor of the Botanical Magazine known as "Webbia" split them up into seven distinct botanical species. The form occurring in India and Ceylon, the "Palmyra" Palm, he calls *Borassus flabellifer*; that making vast forests in West Africa, known as the "Black Rhun" or "Ronier" palm, he names *Borassus ethiopum*; another species in Africa he calls *Borassus deleb*; two Madagascar species he distinguishes as *Borassus sambiranensis* and *Borassus Madagascariensis*; the "Lontar" palm of Bali and Lombok and other of the islands of the Malay

archipelago he considers *Borassus sundaica*; and a New Guinea species he names *Borassus heineana*. He also recognizes a form found by Ridley called *B. machadonis* occurring in the northern part of the Malay peninsula.

I personally have seen only three of these growing in the wild; the Palmyra in Ceylon, the Lontar in Bali and the Black Rhun or Ronier on the West coast of Africa. Only the Palmyra and the Ronier have been successfully introduced and are growing here in the U. S. Plant Introduction Garden at Chapman Field.

According to Professor Warburg in "Die Pflanzenwelt" *Borassus flabellifer* is one of the most useful of all the palms. Lindley in "The Treasury of Botany" states that "the parts of this tree are applied to such a multitude of purposes that a poem in the Tamil language, although enumerating 801 uses, does not exhaust the catalogue." F. S. A. de Clercq in his "Nieuw Plantkundig Woordenboek voor Nederlandsch Indie" gives 52 native names for this palm which is scattered through the various islands of the great Malay Archipelago and devotes a paragraph to its uses which range from building materials to little coverings for ladies to put on their thumbs when they let the thumb nail grow long.

But the most critical recent account of the uses of this palm is that by I. H. Burkill, for twelve years director of the Botanic Garden of the Straits Settlements at Singapore and previously Reporter of the Indian Museum at Calcutta. He devotes six pages to it and examines almost every phase of the question of its present and historical uses. One cannot read his account without realizing that the *Borassus* palm deserves to be considered as having contributed a most amazing variety of materials to the culture of very ancient civilizations dating back before the birth of Christ and coming on down to the present day. These various races of India, Africa, and the Malay archipelago, living in the drier parts where the rainfall is not excessive and the palm grows well, used the leaves cut into strips for making books, the extremely hard wood of the trunks for rafters and beams of all kinds as well as for the making of all sorts of utensils. The starch of the pith furnishes a kind of sago. The tough, broad

leaves are used for fans, and fence-making and roof thatching (although they are short lived thatching material), made into mats of all sorts, hats and rain mantles, baskets and watertight buckets. From the fibers, of which there are five different kinds, a whole category of utensils is made. Experiments in paper making have been tried where the large leaves were abundant. In some regions the leaves are pushed into the mud of rice fields and allowed to rot and make humus. Potash is obtained from them.

But it is as a producer of sugar and of alcoholic beverages, palm wine or toddy and the distilled spirits called arrack that the palm has played its most exciting role, satisfying through generations and to millions of individuals two of the greatest cravings of the human palate; the cravings for something sweet and something which will stimulate or intoxicate.

This is not the place for a discussion of the effects of the "arrack" drinking habits of the people of India but the methods of collecting the sap of the *Borassus* palm are worth knowing, even though the chances of these methods being adopted in the Western World do not seem very great. They apply to the collecting of sap for making the delicious, aromatic-flavored sugar, called "Jaggery", comparable to maple sugar. It deserves to be widely used in this country.

The *Borassus* palm lives a long time; from 60 to 100 years, according to some authors. It carries from 30 to 40 leaves, producing 14 of them a year and does not begin flowering until about 19 years old. When it flowers the "Toddy Gatherer" cuts off many of the leaves; leaving only 4 or 5 if it is a male tree but ten or so if a female. The tapping is carried on over about five of the twelve months of the year, but once in every three years the palm must be given a rest. The tapper climbs the tree at the first sign of its flowering and unwraps the male spikes and binds them into a torch-like structure. Before doing this, however, he crushes every one of the spikes with a pair of wooden tongs or by beating them. (These tongs are illustrated in my "Garden Islands of the Great East" page 176). If the tree is female the shorter flower spike is also beaten. After a few days of this treatment with the pincers, the gatherer cuts

off the tips of the male spikes which have been bound together with fiber and of the single more robust female spike and suspends under their cut ends bamboo buckets to catch the sap that flows out. Twice every day the tapper must climb up and gather the sap, replace the full bucket with an empty one and pare off a very thin slice from the tip of the bleeding spikes to keep them bleeding.* This climbing of the palm and gathering of the sap the toddy gatherer does daily for about five months, even though the palm may be fifty feet high and the petioles of its great leaves have saw-toothed edges as sharp almost as razor blades and he has to climb up over them into the crown and sit among them while removing his buckets of sap and paring the ends of the spikes.

Of course the dairyman who rises at five and milks a dozen or so cows before breakfast may think it pleasanter to sit under a cow and pull its teats but perhaps the sap gatherer might prefer to climb, might not like the smell of the cow or be afraid it would kick him.

The yield of a good sized palm varies of course, but from two to four quarts are usual per day and it can be tapped daily for five months. The sap is so rich in sugar that a gallon of it yields $1\frac{1}{2}$ pounds of the aromatic jaggery sugar and this sugar is 79 per cent saccharose. It is said that the juice of the *Borassus* palm is richer in sugar than the sap of other palms.

However important the palm is for sugar making, it is more important as a source of toddy and arrack. Very shortly after being gathered, owing to the presence of various yeasts the sap takes on the character of a weak cider and is quite as refreshing but by the time it is retailed in the shops as toddy it comes to have three per cent of alcohol and this rapidly increases to six per cent.

Arrack is a distilled liquor made from the palm wine. It is very potent and intoxicating and much of the drunkenness of India is attributed to the excessive drinking of it. Vinegar

is also obtained by allowing toddy to ferment to its extreme limit in vessels buried in the ground. The yeasts which I suspect are powerful ones are utilized for raising bread in Burma and Southern India.

Although as a fruit tree the *Borassus* palm is not so important by any means as is the date palm or the coconut or the "pejibay" palm of the Amazon it does supply a very considerable amount of food. Its fruits are about a third the size of coconuts; dark brown affairs with a skin like the coconut, under which there is a soft tissue filled with many fibers. The orange colored pulp is sweet and much liked by the Indians who eat it as one might a stringy mango. It reminds one of melons, quinces and pine-apples in flavor, and palm fruit-eating parties, where the guests sit around and suck out the soft pulp from between the fibers is picturesquely described by Blatter in his "Palms of British India." It is a characteristic sight in parts of India. A conserve is made of it and the pulp is baked or dried in layers similar to the dried apricot paste of Palestine and kept for months and eaten as a sweetmeat.

The fruit has three seeds in it, each somewhat larger than a Brazil nut and containing when immature a gelatinous substance which is quite palatable, reminding one of young coconut meat. When mature this endosperm becomes bony hard and buttons are made of it. In Ceylon the average crop of fruits per tree is 350. According to Macmillan, "Tropical Gardening and Planting," there are 40,000 acres of this palm in Northern Ceylon where, as in Southern India, with double this acreage, it is ranked as the most important of economic palms.

Perhaps to a botanist the "dantalas" are the most interesting things about the *Borassus* palm. These dantalas are seedlings produced quite far underground in a most curious way. The seed, planted near the surface in loose light soil, sends down to a depth of a foot or more a special organ. This is botanically a hypocotyl or stem; not a root. Enclosed in the tip of this slender

*The reason for crushing or bruising the palm inflorescence, previous to cutting off its tip, which seems to be a universal practice, was not clear to me until I happened to find in the interesting travels of the Plant Physiologist, Hans Molisch, "*Als Naturforscher in Indien*" an account of experiments made by the late Sir Jagadis Chunder Bose and himself. These prove that 'the flow of sap is not caused by root pressure but requires a repeated wounding of the tissues and this wounding must precede the cutting off of the tip of the flower cluster'. That in other words; "The secretory activity of the terminal layer (of cells) is brought into play by the intense stimulation caused by repeated cuts, by repeated blows, and by repeated kneading," of the stem of the inflorescence.

"sinker" as it may be termed, is the young plantlet. This draws its nourishment through the "sinker" from the nut or seed which lies near the surface of the soil. When the nourishment from the seed above is exhausted the young plantlet sends out roots and breaks from its enclosing sheath and grows upward through the soil; to become a deeply planted seedling, not subjected to the vicissitudes of a shallow planted one. The coconut has a less highly developed device. It sends a sprout through the pore out into the air and at the same time sends roots into the thick moist husk and grows on the "meat" supplied by the nut inside the shell until that source of food is exhausted when its roots strike out through the husk into the soil, and the young coconut begins its independent life.

These dantalas are prized as a delicacy by the Tamils. They plant hundreds of the fruits in beds of loose soil and let them germinate for a month or more, then dig them up, take the tender seedlings out of their covering and eat them fresh or cooked. Sometimes they dry them and keep them for months.

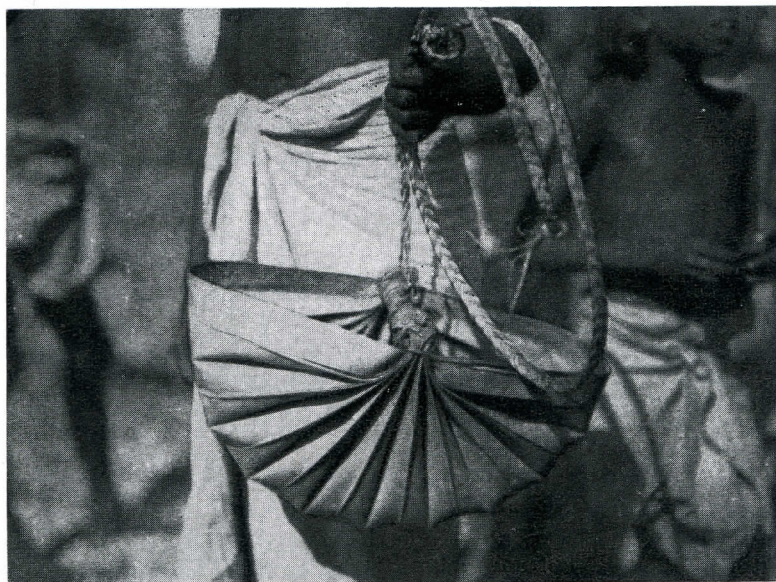
I have eaten these dantalas but although they were as tender as a stalk of celery I did not find they had very much flavor. Perhaps I would develop a taste for them and become as en-

thusiastic as the Tamils had I an abundance of them to experiment with. These dantalas form no insignificant part of the Tamil diet. I wonder what they bring into it in the way of vitamins.

As described in the account of the first Allison Armour Expedition on the yacht "Uto-wana" (See "Exploring for Plants" 312-16.) I first saw groves of the *Borassus* palm, called there the "Palmyra" palm, in northern Ceylon. The peninsula which forms the northern tip of Ceylon is strikingly like the peninsula of Florida in that it has a similar limestone soil underlaid with fresh water and covered with light sand, and has a rainfall of 48 inches. When we arrived by train at Jaffna one morning in early February, 1926, my friend and colleague Howard Dorsett remarked "we're in Fort Lauderdale, Fairchild." And to all appearances we were. There were the same stone fences, the same coral rock and oolitic limestone, shallow wells everywhere with well sweeps instead of pitcher pumps drawing up water from a depth of eight or ten feet and what looked at first like Florida cabbage palms scattered over the landscape. But they were twice as big or more, these Palmyra palms, with immense leaves and almost black stems some of them 60 feet high.

Gradually we came to realize how different they were and how handsome their great crowns were, silhouetted against the sky.

We wandered about cameras in hand and saw everywhere the hard working, long legged Tamils busy making fences of palmyra leaves, drawing water in buckets of their dried leaves, or carting fresh branches of the soft wooded tree, *Thespasia populnea*, to bury in the fields to increase their humus content. Their houses were thatched with Palmyra palm leaves and when we stepped inside we found the rafters were of



It would be hard to find a lighter or prettier water pail than this one made by a Tamil in Jaffna, Ceylon, out of a single leaf of a Palmyra palm. Like the "old oaken bucket" of our forefathers it is used to draw up water from a shallow well by means of a well sweep.

beautiful black palm wood cut from the outer parts of old palm stems. They looked like ebony.

We had come to find seeds of this palm which we had thought vaguely might grow in Florida but when we saw the similarity of soil and learned the similarity of climate we felt pretty sure they would thrive here. The only factor we felt doubtful about was whether they could stand the lower temperatures of Florida. This question has now been settled. The specimens at Chapman Field were only slightly injured in the freeze of 1934 by a temperature of 28F. They were then only 7 years old. Older palms might stand even lower temperatures.

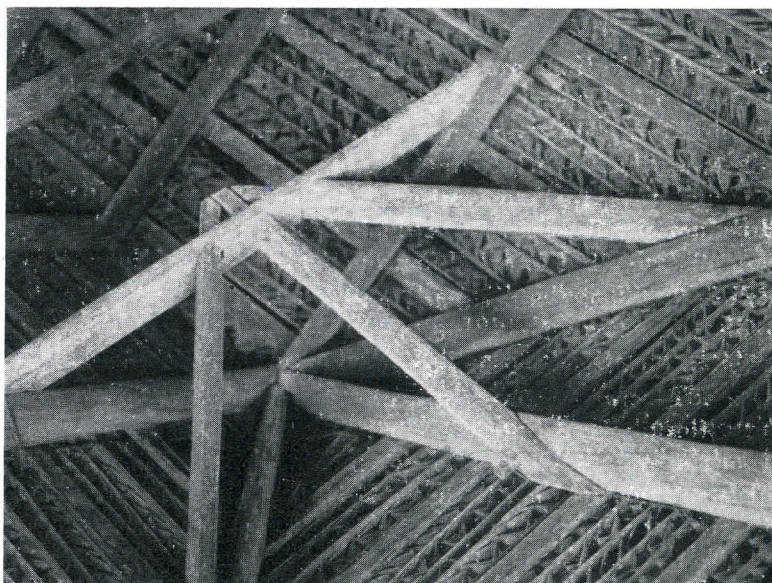
But unfortunately February was no time to look for seeds of this palm in Jaffna. We could get none. The little crowd of boys and men who followed us about showed us the beds where they had buried the fruits in order to let them germinate and produce "dantalas". They peeled the little seedlings loose from the "sinkers" and presented them to us as delicacies and I think were a bit disappointed that we seemed rather indifferent to their delicate flavor. I am conscious now that we did not give them a fair trial as a salad adjunct for only a few were at our disposal.

We, Dorsett and I, with our two sons Jim and Graham, returned to Kandy with a lot of other seeds some of which have done well in Florida, but without a single *Borassus* palm seed. Later seeds from Jaffna were secured through correspondence.

It was an unusual opportunity which Mr. Armour offered to me upon our return to Europe in 1926, to visit the West Coast of Africa in the Utowana and there in the spring of 1927 I saw what is considered a distinct species of *Borassus*, *B. ethiopum*. Groves and tall individual specimens dotted the level plains which

stretched away on either side of the Gambia river in that smallest of British colonies, the Gambia. These appeared similar to the specimens and groves we had seen in Ceylon but with this difference. Many of the palms lacked the grace and the trim outlines of the Jaffna species; many, though not all, had ugly bulges at various distances from the ground; oftenest about a third of the way from the crown of leaves. Whether it was that the soil conditions were less favorable or that the species is a less attractive one than the Ceylon species I was unable to discover. Certainly they did not make so favorable an impression on me.

Thanks to the kindness of the Director of the Experimental Gardens near Bathurst, Mr. A. G. Brooks, we were able to get fruits of this species and make the acquaintance of both the male and the female inflorescences from different trees. The long slender male spikes lay around on my table on the "Utowana" for a good many days and interested me by the appearance of the tiny flowers which peeped out from under its numerous scales. They were so different, the spikes, from any palm inflorescences I had ever seen, that until I made the acquaintance later of the male spikes of the Coco de Mer or Double Coconut (*Lodoicea maldivica*) I thought they



These beautiful ebony-black rafters were made from the timber of the Palmyra palm. The wood of this palm is extremely hard and dark colored and suitable for many household purposes. The thatched roof above the rafters is of the leaves of the same palm. When carefully laid it lasts for twenty years. The effect of this roof was so pleasing that I inverted my camera and tried to picture it. Jaffna, Ceylon, January, 1926.



The *Borassus* palm in the Chapman Field Plant Introduction Garden. It was planted as a seed in the deep soil of a "pot hole" in the garden in the summer of 1929 and has grown into a very striking palm and this spring has produced a male inflorescence. The seed came in as the result of the Allison V. Armour Expedition to West Africa in 1927, being sent by A. J. Brooks of Bathurst, Gambia. It bears the Plant Introduction Number of 81073. The photograph was taken from the hillside above the palm and does not do it justice. Mr. Thomas Fennell planted the seed. It is botanically *Borassus ethiopum*.

must be unique. This resemblance makes it obvious that there is a more or less close relationship between these two genera of palms; *Borassus* and *Lodoicea*. The spikes of both are cylindrical structures two inches through and a foot and a half long, compact and with close-fitting scales covering depressions on the stem which contain the male flower clusters. The single flowers are pushed up one by one from under the covering scales. They are produced on different individual palms as are the male flower clusters of the date palm.

The female flowers were borne on shorter spikes and were surrounded individually by thick scales. I counted thirty fruits on one female spike as we removed them in order to clean the fibrous flesh from them for shipment

of the seeds, three in each fruit. So tough were the fibers on these fruits that Mr. Whitehouse who cleaned them had to use a pair of pincers to tear them loose from the seeds. He did not appreciate the sweet orange fruit pulp which oozed out from between the fibers over his fingers, but admitted there was a delicate fragrance about the ripe fruits.

Seeds from these palms on the Gambia were sent in and later more were secured from the market at Secundee on the Gold Coast and planted in the Chapman Field Plant Introduction Garden. (See "Exploring for Plants" page 474 for photograph of three-year-old plant.)

Of the "Lontar" species of *Borassus*, I only got a glimpse during a brief stay in the island of Bali, in 1940 and at Grisse on the eastern



A Tamil peasant holding up three sprouted seeds of the Palmyra palm to show the three "sinkers" called "Dantalas" in India and "Kelengus" in Ceylon. Inside of each is a young seedling which is taken out by splitting open the covering sheath. These seedlings are considered a great delicacy, either eaten fresh or dried and ground into a meal. They taste like 'heart of palm' somewhat and are very delicate.

end of Java near Soerabaya. The impression I got of this *Borassus sundaica*, in comparison with the other two species of Ceylon and the Gambia, which I had seen 13 years before, while not of course worth much was of a smaller and more graceful palm with trunks which never seemed to form bulges as do those in Gambia.

I was there at the wrong season and unfortunately although I made arrangements to secure seeds of it, none have ever arrived; for a month later the Germans invaded Holland and afterwards the Japanese bombed Bali and the war closed all chances of getting them. This species should be introduced for comparison with the

other two which I have just described and also the Madagascar and New Guinea species, as well as one which Ridley discovered in the northern part of the Malay Peninsula, and named *B. machadonis*, Ridl.

Now that air transportation reaches out to all of these regions it should be possible to get the seeds of all of these forms and grow them side by side for a better comparison than is possible with fragmentary dried material. Since Professor Martelli bases his classification largely on seed and flower characters his distinctions may very likely represent specific differences but a comparison of the living palms may add other characters of difference.

But whether the *Borassus* palms be considered as several distinct species or as only one variable

species, the fact that forms of it are growing and flowering here should not be without interest to the members of the Fairchild Tropical Garden. Members may wonder why this palm is not yet represented in the Montgomery Palmetum of the Fairchild Garden and the explanation of this brings out one of the characteristics, important characteristic, of this species.

It appears to be very difficult to transplant. When the seeds arrived from West Africa, because of their great rarity and the desire to take every precaution to save them, they were planted in especially deep boxes and kept in the slat house where they germinated and made good vigorous plants. I had warned Mr. Simmonds in my notes which accompanied the seeds to plant some of them where they could grow without being disturbed. This was done, fortu-



The *Borassus ethiopum* palm of West Africa seen from the "pot hole" in which its seed was planted. Its immense leaf bases are beginning to fall off. They are very dark brown with black margins as sharp as razor blades. When they fall they leave a rough trunk up which the sap collectors can climb. To appreciate the beauty of this palm one should go down into the place where it is growing and look up through its immense leaves. This specimen is a male one and now in flower. It is 81073 U. S. Plant Introduction Garden.

nately, for when the plants in the boxes were transplanted to the open ground they promptly died, all of them; whereas the seeds in the "Pot Hole" in the Chapman Field Garden and one on the rocky soil grew into fine specimens. There were several of these and wishing to have a representative in the Fairchild Garden, one of them, then ten feet or so high, was transplanted

with the greatest care, but it failed to live. Whether this characteristic is destined to stand in the way of the wide planting of this picturesque and interesting palm, only the bringing in and testing of more seeds will determine. I hope not, for I seem to see in my imagination groves and roadside plantings of it throughout this region.